

20000W Cutting Parameter

Material	Thickness	Assisted Gas	Speed(m/min)			
Carbon Steel	1.0	Oxygen	8.0-12.0			
	2.0		6.0-7.5			
	3.0		4.0-5.0			
	4.0		3.5-4.5			
	5.0		3.0-3.8			
	6.0		2.6-3.5			
	8.0		2.0-2.7			
	10.0		1.8-2.3			
	12.0		1.8-2.0			
	16.0		1.0-1.4			
	20.0		0.8-1.2			
	22.0		0.7-0.9			
	25.0		0.6-0.9			
	30.0		0.4-0.6			
	40.0		0.3-0.5			
	50.0	0.2-0.3				
	60.0	0.1-0.2				
	Carbon Steel	1.0	Nitrogen	60.0-90.0		
		2.0		40.0-55.0		
		3.0		30.0-45.0		
		4.0		22.0-40.0		
		5.0		17.0-30.0		
		6.0		15.0-25.0		
		8.0		10.0-20.0		
		10.0		7.0-13.0		
		12.0		5.0-9.0		
		14.0		3.0-6.0		
		Carbon Steel		1.0	Air	62.0-90.0
				2.0		41.0-56.0
				3.0		31.0-46.0
4.0				23.0-41.0		
5.0				18.0-32.0		
6.0	16.0-27.0					
8.0	11.0-22.0					
10.0	7.5-13.5					
12.0	5.5-10.5					
14.0	3.4-6.8					
Stainless Steel	1.0		Nitrogen	75.0-90.0		
	2.0			47.0-60.0		
	3.0			30.0-45.0		
	4.0			25.0-40.0		
	5.0			17.0-30.0		
	6.0	15.0-20.0				
	8.0	9.0-18.0				
	10.0	6.0-15.0				
	12.0	5.0-7.5				
	14.0	3.5-6.0				
	16.0	3.0-4.5				
	20.0	1.8-3.0				
	25.0	1.0-1.7				
	30.0	0.7-1.2				



	40.0 50.0 60.0 70.0		0.4-0.8 0.3-0.6 0.2-0.3 0.1-0.2
Stainless Steel	1.0 2.0 3.0 4.0 5.0 6.0 8.0 10.0 12.0 14.0 16.0 20.0 25.0 30.0 40.0 50.0 60.0 70.0	Air	75.0-90.0 47.0-61.0 30.0-46.0 25.0-41.0 17.0-31.0 15.0-21.0 9.0-19.0 6.0-16.0 5.0-8.5 3.5-6.8 3.0-4.8 1.8-3.6 1.0-2.3 0.7-1.7 0.4-1.4 0.3-1.2 0.2-0.6 0.1-0.3
Aluminum	1.0 2.0 3.0 4.0 5.0 6.0 8.0 10.0 12.0 16.0 20.0 25.0 30.0 40.0	Nitrogen	65.0-85.0 45.0-55.0 28.0-40.0 25.0-35.0 20.0-30.0 18.0-26.0 12.0-18.0 5.0-9.5 4.0-7.0 1.8-4.0 1.4-2.0 1.0-1.5 0.7-1.0 0.5-0.8
Brass	1.0 2.0 3.0 4.0 5.0 6.0 8.0 10.0 12.0 15.0 16.0	Nitrogen	62.0-75.0 40.0-50.0 25.0-35.0 15.0-28.0 13.0-17.0 11.0-16.0 7.0-10.0 5.0-7.0 2.3-4.0 1.5-2.8 1.0-2.0
Copper	1.0 2.0 3.0 4.0 5.0 6.0 8.0 10.0	Oxygen	60.0-70.0 40.0-50.0 20.0-30.0 15.0-20.0 12.0-18.0 8.0-15.0 5.0-7.0 3.5-4.5



	12.0 14.0		1.5-1.8 1.0-2.0
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(Above parameter is for reference only. The quality of materials, pressure during cutting, and profile designing, etc. will affect cutting speed.)



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Cost Analysis

Items	Cutting of stainless steel (1mm)	Cutting of carbon steel (5mm)
Electricity expenses	RMB 110/h	RMB 110/h
Expenses of cutting auxiliary gas	RMB 16/h (N2)	RMB 10/h (O2)
Expenses of protective lens and nozzle	RMB 4/h	RMB 5/h
Total expenses	RMB 130/h	RMB 125/h

If the assisted cutting gas is the dried compressed air, expenses are the actual operation expenses of the air compressor plus expenses of electricity consumed by the machine tool and consumables like protective mirror and nozzle).

Notes:

1. The electricity expense and gas expense in the table above are based on the price in Foshan, China and prices in different areas will be various;
2. When the machine is cutting other thickness or different metal sheet, consumption of the assisted gas may be different.

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